REMARKS

Claims 1, 2, 4, 6-9, 13-19 and 23-30 are pending in the present application. Claims 24-30 have been allowed and claim 16 is objected to, but has been indicated as containing allowable subject matter. Applicants cordially thank the Examiner for indication of the same. Claims 1 and 14 have been amended and Claim 16 has been cancelled, leaving Claims 1, 2, 4, 6-9, 13-15, 17-19 and 23-30 for consideration upon entry of the present amendment. No new matter was introduced by this amendment. Applicants respectfully request consideration and allowance of the claims.

Claim Objections

Claim 1 has been amended to include the allowable subject matter indicated with respect to claim 16, while claim 16 has been cancelled. Therefore, any rejection to claim 16 is rendered moot. Claim 1 has been amended reciting "surface undulations", as suggested by the Examiner with respect to claim 16. Claim 14 has been amended to properly reflect dependency on claim 13 rather than claim 14, as suggested by the Examiner.

Claim Rejections Under 35 U.S.C. § 103

Claims 1, 2, 4, 6, 8, 9 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,362,863 to Kataoka et al. (Kataoka) (Office Action dated 11/2/2005, pages 3 and 4)

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references; and that the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was

make. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996).

Claim 1 is directed to a liquid crystal display comprising an upper substrate having an inner surface on which an upper electrode and an upper grating film having surface undulation are laminated; a lower substrate having an inner surface on which a lower electrode and a lower grating film having surface undulation are laminated, the inner surface of the lower substrate facing the inner surface of the upper substrate; and a liquid crystal having dielectric anisotropy which is sealed in the space between the upper substrate and the lower substrate, wherein each of pixels having a predetermined period includes a plurality of sub pixels having different alignment structures in one period, and wherein the surface undulations are one-dimensional and the period of the surface undulations is between 1/4 and 2 times of the predetermined period of the pixels.

Kataoka discloses a liquid crystal display device that includes alignment control layers provided on the inner sides of the substrates and having a saw-tooth cross-section with slopes inclinating at an angle relative to the substrate. (see Abstract) The liquid crystal display of Kataoka includes upper and lower alignment control layers each providing a pretilt angle for the liquid crystal, so that the pretilt angle is increased as a function of the alignment control layer (see Abstract; column 6, lines 32-46). In contrast, the liquid crystal display of the present invention include upper and lower substrates having surface undulations that are one-dimensional and that have a period of between ¼ and 2 times the predetermined period of the pixels (claim 1), so that the liquid crystal is rearranged in a multi-domain structure when an electric field is applied.

In addition, despite the Examiner's contention, Kataoka does not mention that the various layers of its liquid crystalline display are laminated. The claimed invention in contrast, is directed to a liquid crystal display comprising an upper substrate and a lower substrate both of which have an inner surface on which an electrode and a grating film having surface undulation are laminated. For at least the above reasons, Kataoka does not teach all elements of the claimed invention.

Since the Examiner has not made a prima facie case of obviousness over Kataoka, Applicants respectfully request a withdrawal of the rejection over Kataoka and an allowance of the claims.

Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over Kataoka in view of U.S. Patent No. 4,693,557 to Fergason and U.S. Patent No. 6,535,257 to Miller. (Office Action dated 11/2/2005, page 5)

Fergason teaches a liquid crystal moving picture projector includes a liquid crystal imager or display device and projection optics for projecting images sequentially created by the imager (see Abstract). Fergason, however, in not teaching surface undulations that are one-dimensional and the period of the surface undulations is between ¼ and 2 times the predetermined period of the pixels does not make up for the deficiency of Kataoka.

Thus the combination of Kataoka and Fergason does not lead to the claimed invention. Applicants respectfully request a withdrawal of the obviousness rejection over Kataoka in view of Fergason and an allowance of the claims.

Miller teaches a liquid crystal cell assembly which eliminates high-order multiple-beam interference from reflections at the interfaces between the various elements (see Abstract). Miller like Fergason, in not teaching surface undulations that are one-dimensional and the period of the surface undulations is between ¼ and 2 times the predetermined period of the pixels, does not make up for the deficiency of Kataoka. Thus the combination of Kataoka with Fergason and Miller does not lead to the claimed invention. Applicants respectfully request a withdrawal of the obviousness rejection over Kataoka in view of Fergason and Miller and an allowance of the claims.

Claims 1, 2, 4, 6, 7, 13 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,725,915 to Ishitaka et al. (Ishitaka) (Office Action dated 11/2/2005, pages 5-7)

Ishitaka teaches a liquid crystal display wherein each alignment layer has roof like convex and concave rows, formed by repeatedly, in a first direction, forming convex portions each consisting of a longer side portion and a shorter side portion, and valley like concave and convex rows having a height that is lower than that of the roof-like concave and convex rows and formed in the same direction as that of the roof-like concave and convex rows (see Abstract). The liquid crystal display of Ishitaka therefore includes convex portions formed on the surface of the alignment layer having a longer side portion and a shorter side portion, so that a sufficiently large pretilt angle can be obtained and generation of domains can be prevented (see Abstract, column 46, lines 27-24). Ishitaka however, does not teach a liquid crystalline display that includes upper and lower surface undulations that are one dimensional and the period of the surface undulations is between ¼ and 2 times the predetermined period of the pixels, so that a multi-domain structure can be obtained. For this reason at least Ishitaka does not teach all elements of the claimed invention and cannot render the instant invention obvious. Applicants respectfully request a withdrawal of the obviousness rejection over Ishitaka and an allowance of the claims.

Claim 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishitaka, as applied above, in view of Japanese Document No. 01-270024 to Hirai et al (Hirai) (Office Action dated 11/2/2005, page 7)

Hirai teaches compensation films between the outer surfaces on the upper substrate and the lower substrate and the respective polarizers, wherein the optic axes of the compensation films are configured to form approximately 45 degrees to the optic axes of the relevant polarizers. Hirai also does not teach a liquid crystalline display that includes surface undulations that are one-dimensional and the period of the surface undulations is between ¼ and 2 times the predetermined period of the pixels, so that a multi-domain structure can be obtained. For this reason at least the claimed invention is not obvious over the combination of Ishitaka and Hirai. Applicants therefore respectfully

request a withdrawal of the obviousness rejection over Ishitaka in view of Hirai and an allowance of the claims.

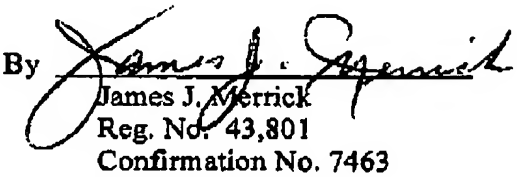
Conclusion

In view of the foregoing, it is respectfully submitted that the instant application is in condition for allowance. Accordingly, it is respectfully requested that this application be allowed and a Notice of Allowance issued. If the Examiner believes that a telephone conference with Applicants' attorneys would be advantageous to the disposition of this case, the Examiner is cordially requested to telephone the undersigned.

In the event the Commissioner of Patents and Trademarks deems additional fees to be due in connection with this application, Applicants' attorney hereby authorizes that such fee be charged to Deposit Account No. 06-1130.

Respectfully submitted,

CANTOR COLBURN LLP

By 

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